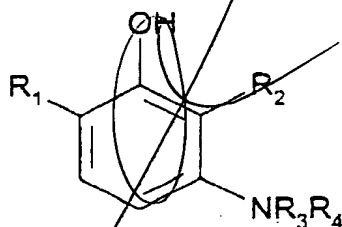


## CLAIMS

1. Composition for the oxidation dyeing of human keratin fibres and in particular human keratin fibres such as the hair, characterized in that it comprises, in a medium which is suitable for dyeing:
- at least one oxidation base chosen from diaminopyrazoles and triaminopyrazoles;
  - and at least one coupler chosen from the halogenated meta-aminophenols of formula (I) below, and the addition salts thereof with an acid:



(I)

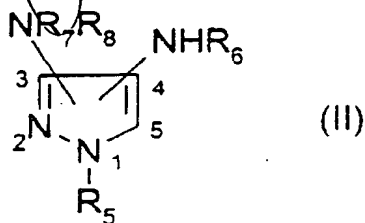
in which:

- $R_1$  and  $R_2$ , which may be identical or different, represent a hydrogen atom, a halogen atom such as chlorine, bromine, iodine or fluorine, a  $C_1$ - $C_4$  alkyl radical, a  $C_1$ - $C_4$  monohydroxyalkyl radical, a  $C_2$ - $C_4$  polyhydroxyalkyl radical, a  $C_1$ - $C_4$  alkoxy radical, a  $C_1$ - $C_4$  monohydroxyalkoxy radical or a  $C_2$ - $C_4$  polyhydroxyalkoxy radical;
- $R_3$  and  $R_4$ , which may be identical or different, represent a hydrogen atom, a  $C_1$ - $C_4$  alkyl radical, a  $C_1$ - $C_4$  monohydroxyalkyl radical, a  $C_2$ - $C_4$  polyhydroxyalkyl radical or a  $C_1$ - $C_4$  monoaminoalkyl radical;

it being understood that at least one of the radicals  $R_1$  and  $R_2$  represents a halogen atom.

2. Composition according to Claim 1, characterized in that the halogenated meta-aminophenols of formula (I) are chosen from 3-amino-6-chlorophenol, 3-amino-6-bromophenol, 3-( $\beta$ -aminoethyl)amino-6-chlorophenol, 3-( $\beta$ -hydroxyethyl)amino-6-chlorophenol and 3-amino-2-chloro-6-methylphenol, and the addition salts thereof with an acid.

3. Composition according to Claim 1 or 2, characterized in that the diaminopyrazoles which can be used as oxidation bases are chosen from:  
a) the diaminopyrazoles of formula (II) below, and the addition salts thereof with an acid:



in which:

-  $R_5$  represents a hydrogen atom, a  $C_1$ - $C_6$  alkyl radical, a  $C_2$ - $C_4$  hydroxyalkyl radical, a benzyl radical, a phenyl radical, a benzyl radical substituted with a halogen atom or with a  $C_1$ - $C_4$  alkyl or  $C_1$ - $C_4$  alkoxy group, or forms, with the nitrogen atom of the group  $NR_7R_8$  in position 5, a hexahydropyridazine or tetrahydropyrazole

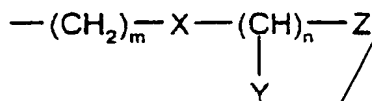
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- R<sub>6</sub> and R<sub>7</sub> which may be identical or different, represent a hydrogen atom, a C<sub>1</sub>-C<sub>4</sub> alkyl radical, a C<sub>2</sub>-C<sub>4</sub> hydroxyalkyl radical, a benzyl radical or a phenyl radical;

(III)

- R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub> and R<sub>13</sub>, which may be identical or different, represent a hydrogen atom; a linear or branched C<sub>1</sub>-C<sub>6</sub> alkyl radical; a C<sub>2</sub>-C<sub>4</sub> hydroxyalkyl radical; a C<sub>2</sub>-C<sub>4</sub> aminoalkyl radical; a phenyl radical; a phenyl radical substituted with a halogen atom or a C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, nitro, trifluoromethyl, amino or C<sub>1</sub>-C<sub>4</sub> alkylamino radical; a benzyl radical; a benzyl

radical substituted with a halogen atom or with a C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, methylenedioxy or amino radical; or a radical



- 5 in which m and n are integers, which may be identical or different, between 1 and 3 inclusive, X represents an oxygen atom or an NH group, Y represents a hydrogen atom or a methyl radical, and Z represents a methyl radical, a group OR or NRR' in which R and R', which
- 10 may be identical or different, denote a hydrogen atom, a methyl radical or an ethyl radical, it being understood that when R<sub>10</sub> represents a hydrogen atom, then R<sub>11</sub> can also represent an amino or C<sub>1</sub>-C<sub>4</sub> alkylamino radical,
- 15 - R<sub>14</sub> represents a linear or branched C<sub>1</sub>-C<sub>6</sub> alkyl radical; a C<sub>1</sub>-C<sub>4</sub> hydroxyalkyl radical; a C<sub>1</sub>-C<sub>4</sub> aminoalkyl radical; a (C<sub>1</sub>-C<sub>4</sub>)alkylamino(C<sub>1</sub>-C<sub>4</sub>)alkyl radical; a di(C<sub>1</sub>-C<sub>4</sub>)alkylamino(C<sub>1</sub>-C<sub>4</sub>)alkyl radical; a hydroxy(C<sub>1</sub>-C<sub>4</sub>)alkylamino(C<sub>1</sub>-C<sub>4</sub>)alkyl radical; a (C<sub>1</sub>-C<sub>4</sub>)alkoxymethyl
- 20 radical; a phenyl radical; a phenyl radical substituted with a halogen atom or with a C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, nitro, trifluoromethyl, amino or C<sub>1</sub>-C<sub>4</sub> alkylamino radical; a benzyl radical; a benzyl radical substituted with a halogen atom or with a C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy,
- 25 nitro, trifluoromethyl, amino or C<sub>1</sub>-C<sub>4</sub> alkylamino

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OR", in which p and q are integers, which may be identical or different, between 1 and 3 inclusive, and

- at least one of the radicals  $R_{10}$ ,  $R_{11}$ ,  $R_{12}$  and  $R_{13}$  represents a hydrogen atom,

$$\text{---}(\text{CH}_2)_m\text{---X---}(\text{CH})_n\text{---Z}$$

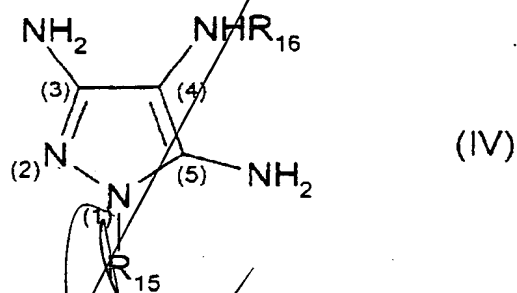
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15 - when  $R_{12}$  and  $R_{13}$  simultaneously represent a hydrogen atom, then  $R_9$  can form, with  $R_{10}$  and  $R_{11}$ , a hexahydropyrimidine or tetrahydroimidazole heterocycle which is optionally substituted with a  $C_1$ - $C_4$  alkyl or 1,2,4-tetrazole radical,

20 - when R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub> and R<sub>13</sub> represent a hydrogen atom or a C<sub>1</sub>-C<sub>6</sub> alkyl radical, then R<sub>9</sub> or R<sub>14</sub> can also represent a 2-, 3- or 4-pyridyl, 2- or 3-thienyl or 2- or 3-furyl heterocyclic residue which is optionally substituted

with a methyl radical or alternatively a cyclohexyl radical.

4. Composition according to Claim 1 or 2, characterized in that the triaminopyrazoles which can be used as oxidation bases are chosen from the compounds of formula (IV) below, and the addition salts thereof with an acid:



in which:

10 -  $R_{15}$  and  $R_{16}$ , which may be identical or different, represent a hydrogen atom or a  $C_1$ - $C_4$  alkyl or  $C_2$ - $C_4$  hydroxyalkyl radical.

5. Composition according to Claim 3, characterized in that the diaminopyrazoles of formula (II) are chosen from 4,5-diamino-1-(4'-methoxybenzyl)-pyrazole, 4,5-diamino-1-(4'-methylbenzyl)pyrazole, 4,5-diamino-1-(4'-chlorobenzyl)pyrazole, 4,5-diamino-1-(3'-methoxybenzyl)pyrazole, 4-amino-1-(4'-methoxybenzyl)-5-methylaminopyrazole, 4-amino-5-( $\beta$ -hydroxyethyl)amino-1-(4'-methoxybenzyl)pyrazole, 4-amino-5-( $\beta$ -hydroxyethyl)-amino-1-methylpyrazole, 4-amino-(3)5-methylamino-

6. Composition according to Claim 3, characterized in that the diaminopyrazoles of formula (III) are chosen from:

- 10 - 1-benzyl-4,5-diamino-3-methylpyrazole,
- 4,5-diamino-1-( $\beta$ -hydroxyethyl)-3-(4'-methoxyphenyl)-pyrazole,
- 4,5-diamino-1-( $\beta$ -hydroxyethyl)-3-(4'-methylphenyl)-pyrazole,
- 15 - 4,5-diamino-1-( $\beta$ -hydroxyethyl)-3-(3'-methylphenyl)-pyrazole,
- 4,5-diamino-3-methyl-1-isopropylpyrazole,
- 4,5-diamino-3-(4'-methoxyphenyl)-1-isopropylpyrazole,
- 4,5-diamino-1-ethyl-3-methylpyrazole,
- 20 - 4,5-diamino-1-ethyl-3-(4'-methoxyphenyl)pyrazole,
- 4,5-diamino-3-hydroxymethyl-1-methylpyrazole,
- 4,5-diamino-1-ethyl-3-hydroxymethylpyrazole,
- 4,5-diamino-3-hydroxymethyl-1-isopropylpyrazole,
- 4,5-diamino-3-hydroxymethyl-1-tert-butylpyrazole,
- 25 - 4,5-diamino-3-hydroxymethyl-1-phenylpyrazole,

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- 4,5-diamino-3-hydroxymethyl-1-(2'-methoxyphenyl)-pyrazole,
  - 4,5-diamino-3-hydroxymethyl-1-(3'-methoxyphenyl)-pyrazole,
  - 5 - 4,5-diamino-3-hydroxymethyl-1-(4'-methoxyphenyl)-pyrazole,
  - 1-benzyl-4,5-diamino-3-hydroxymethylpyrazole,
  - 4,5-diamino-3-methyl-1-(2'-methoxyphenyl)pyrazole,
  - 4,5-diamino-3-methyl-1-(3'-methoxyphenyl)pyrazole,
  - 10 - 4,5-diamino-3-methyl-1-(4'-methoxyphenyl)pyrazole,
  - 3-aminomethyl-4,5-diamino-1-methylpyrazole,
  - 3-aminomethyl-4,5-diamino-1-ethylpyrazole,
  - 3-aminomethyl-4,5-diamino-1-isopropylpyrazole,
  - 3-aminomethyl-4,5-diamino-1-tert-butylpyrazole,
  - 15 - 4,5-diamino-3-dimethylaminomethyl-1-methylpyrazole,
  - 4,5-diamino-3-dimethylaminomethyl-1-isopropylpyrazole,
  - 4,5-diamino-3-dimethylaminomethyl-1-tert-butylpyrazole,
  - 20 - 4,5-diamino-3-ethylaminomethyl-1-methylpyrazole,
  - 4,5-diamino-3-ethylaminomethyl-1-ethylpyrazole,
  - 4,5-diamino-3-ethylaminomethyl-1-isopropylpyrazole,
  - 4,5-diamino-3-ethylaminomethyl-1-tert-butylpyrazole,
  - 4,5-diamino-3-methylaminomethyl-1-methylpyrazole,
  - 25 - 4,5-diamino-3-methylaminomethyl-1-isopropylpyrazole,
  - 4,5-diamino-1-ethyl-3-methylaminomethylpyrazole,



- 1-tert-butyl-4,5-diamino-3-methylaminomethylpyrazole,
- 4,5-diamino-3-[( $\beta$ -hydroxyethyl)aminomethyl]-1-methylpyrazole,
- 4,5-diamino-3-[( $\beta$ -hydroxyethyl)aminomethyl]-1-isopropylpyrazole,
- 4,5-diamino-1-ethyl-3-[( $\beta$ -hydroxyethyl)aminomethyl]-pyrazole,
- 1-tert-butyl-4,5-diamino-3-[( $\beta$ -hydroxyethyl)aminomethyl]pyrazole,
- 4-amino-5-( $\beta$ -hydroxyethyl)amino-1,3-dimethylpyrazole,
- 4-amino-5-( $\beta$ -hydroxyethyl)amino-1-isopropyl-3-methylpyrazole,
- 4-amino-5-( $\beta$ -hydroxyethyl)amino-1-ethyl-3-methylpyrazole,
- 4-amino-5-( $\beta$ -hydroxyethyl)amino-1-tert-butyl-3-methylpyrazole,
- 4-amino-5-( $\beta$ -hydroxyethyl)amino-1-phenyl-3-methylpyrazole,
- 4-amino-5-( $\beta$ -hydroxyethyl)amino-1-(2-methoxyphenyl)-3-methylpyrazole,
- 4-amino-5-( $\beta$ -hydroxyethyl)amino-1-(3-methoxyphenyl)-3-methylpyrazole,
- 4-amino-5-( $\beta$ -hydroxyethyl)amino-1-(4-methoxyphenyl)-3-methylpyrazole,

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- 4-amino-5-( $\beta$ -hydroxyethyl)amino-1-benzyl-3-methylpyrazole,
  - 4-amino-1-ethyl-3-methyl-5-methylaminopyrazole,
  - 4-amino-1-tert-butyl-3-methyl-5-methylaminopyrazole,
  - 5 - 4,5-diamino-1,3-dimethylpyrazole,
  - 4,5-diamino-3-tert-butyl-1-methylpyrazole,
  - 4,5-diamino-1-tert-butyl-3-methylpyrazole,
  - 4,5-diamino-1-methyl-3-phenylpyrazole,
  - 4,5-diamino-1-( $\beta$ -hydroxyethyl)-3-methylpyrazole,
  - 10 - 4,5-diamino-1-( $\beta$ -hydroxyethyl)-3-phenylpyrazole,
  - 4,5-diamino-1-methyl-3-(2'-chlorophenyl)pyrazole,
  - 4,5-diamino-1-methyl-3-(4'-chlorophenyl)pyrazole,
  - 4,5-diamino-1-methyl-3-(3'-trifluoromethylphenyl)-pyrazole,
  - 15 - 4,5-diamino-1,3-diphenylpyrazole,
  - 4,5-diamino-3-methyl-1-phenylpyrazole,
  - 4-amino-1,3-dimethyl-5-phenylaminopyrazole,
  - 4-amino-1-ethyl-3-methyl-5-phenylaminopyrazole,
  - 4-amino-1,3-dimethyl-5-methylaminopyrazole,
  - 20 - 4-amino-3-methyl-1-isopropyl-5-methylaminopyrazole,
  - 4-amino-3-isobutoxymethyl-1-methyl-5-methylamino-pyrazole,
  - 4-amino-3-methoxyethoxymethyl-1-methyl-5-methylamino-pyrazole,
  - 25 - 4-amino-3-hydroxymethyl-1-methyl-5-methylamino-pyrazole,

- 4-amino-1,3-diphenyl-5-phenylaminopyrazole,
- 4-amino-3-methyl-5-methylamino-1-phenylpyrazole,
- 4-amino-1,3-dimethyl-5-hydrazinopyrazole,
- 5-amino-3-methyl-4-methylamino-1-phenylpyrazole,
- 5 - 5-amino-1-methyl-4-(N,N-methylphenyl)amino-3-(4'-chlorophenyl)pyrazole,
- 5-amino-3-ethyl-1-methyl-4-(N,N-methylphenyl)amino-pyrazole,
- 5-amino-1-methyl-4-(N,N-methylphenyl)amino-3-
- 10 phenylpyrazole,
- 5-amino-3-ethyl-4-(N,N-methylphenyl)aminopyrazole,
- 5-amino-4-(N,N-methylphenyl)amino-3-phenylpyrazole,
- 5-amino-4-(N,N-methylphenyl)amino-3-(4'-methyl-phenyl)pyrazole,
- 15 - 5-amino-3-(4'-chlorophenyl)-4-(N,N-methylphenyl)-aminopyrazole,
- 5-amino-3-(4'-methoxyphenyl)-4-(N,N-methylphenyl)-aminopyrazole,
- 4-amino-5-methylamino-3-phenylpyrazole,
- 20 - 4-amino-5-ethylamino-3-phenylpyrazole,
- 4-amino-5-ethylamino-3-(4'-methylphenyl)pyrazole,
- 4-amino-3-phenyl-5-propylaminopyrazole,
- 4-amino-5-butylamino-3-phenylpyrazole,
- 4-amino-3-phenyl-5-phenylaminopyrazole,
- 25 - 4-amino-5-benzylamino-3-phenylpyrazole,
- 4-amino-5-(4'-chlorophenyl)amino-3-phenylpyrazole,

- 4-amino-3-(4'-chlorophenyl)-5-phenylaminopyrazole,
  - 4-amino-3-(4'-methoxyphenyl)-5-phenylaminopyrazole,
  - 1-(4'-chlorobenzyl)-4,5-diamino-3-methylpyrazole,
  - 4,5-diamino-3-hydroxymethyl-1-isopropylpyrazole,
  - 5 - 4-amino-1-ethyl-3-methyl-5-methylaminopyrazole,
  - 4-amino-5-(2'-aminoethyl)amino-1,3-dimethylpyrazole,
- and the addition salts thereof with an acid.

7. Composition according to Claim 6,  
characterized in that the diaminopyrazoles of formula  
10 (III) are chosen from:

- 4,5-diamino-1,3-dimethylpyrazole,
  - 4,5-diamino-3-methyl-1-phenylpyrazole,
  - 4,5-diamino-1-methyl-3-phenylpyrazole,
  - 4-amino-1,3-dimethyl-5-hydrazinopyrazole,
  - 15 - 1-benzyl-4,5-diamino-3-methylpyrazole,
  - 4,5-diamino-3-tert-butyl-1-methylpyrazole,
  - 4,5-diamino-1-tert-butyl-3-methylpyrazole,
  - 4,5-diamino-1-( $\beta$ -hydroxyethyl)-3-methylpyrazole,
  - 4,5-diamino-1-ethyl-3-methylpyrazole,
  - 20 - 4,5-diamino-1-ethyl-3-(4'-methoxyphenyl)pyrazole,
  - 4,5-diamino-1-ethyl-3-hydroxymethylpyrazole,
  - 4,5-diamino-3-hydroxymethyl-1-methylpyrazole,
  - 4,5-diamino-3-hydroxymethyl-1-isopropylpyrazole,
  - 4,5-diamino-3-methyl-1-isopropylpyrazole,
  - 25 - 4-amino-5-(2'-aminoethyl)amino-1,3-dimethylpyrazole,
- and the addition salts thereof with an acid.

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8. Composition according to Claim 4 characterized in that the triaminopyrazoles of formula (IV) are chosen from 3,4,5-triaminopyrazole, 1-methyl-3,4,5-triaminopyrazole, 3,5-diamino-1-methyl-4-methylaminopyrazole and 3,5-diamino-4-( $\beta$ -hydroxyethyl)amino-1-methylpyrazole, and the addition salts thereof with an acid.

9. Composition according to any one of the preceding claims, characterized in that the diaminopyrazole(s) and/or the triaminopyrazole(s) and/or the corresponding addition salt(s) with an acid represent(s) from 0.0005 to 12% by weight relative to the total weight of the dye composition.

10. Composition according to Claim 9, characterized in that the diaminopyrazole(s) and/or the triaminopyrazole(s) and/or the corresponding addition salt(s) with an acid represent(s) from 0.005 to 6% by weight relative to the total weight of the dye composition.

11. Composition according to any one of the preceding claims, characterized in that the halogenated meta-aminophenol(s) of formula (I) and/or the corresponding addition salt(s) with an acid represent(s) from 0.0001 to 5% by weight relative to the total weight of the dye composition.

12. Composition according to Claim 11, characterized in that the halogenated meta-aminophenol(s) of formula (I) and/or the corresponding addition salt(s) with an acid represent(s) from 0.005 to 3% by weight relative to the total weight of the dye composition.

13. Composition according to any one of the preceding claims, characterized in that the addition salts with an acid are chosen from the hydrochlorides, hydrobromides, sulphates, tartrates, lactates and acetates.

14. Composition according to any one of the preceding claims, characterized in that the medium which is suitable for dyeing (or support) consists of water or of a mixture of water and at least one organic solvent chosen from C<sub>1</sub>-C<sub>4</sub> lower alkanols, glycerol, glycols and glycol ethers, aromatic alcohols, similar products and mixtures thereof.

15. Composition according to any one of the preceding claims, characterized in that it has a pH of between 3 and 12.

16. Composition according to any one of the preceding claims, characterized in that it is in the form of liquids, creams or gels or in any other form which is suitable for dyeing keratin fibres, and in particular human hair.

18. Process according to Claim 17,  
characterized in that the oxidizing agent present in  
the oxidizing composition is chosen from hydrogen  
peroxide, urea peroxide, alkali metal bromates,  
persalts such as perborates, percarbonates and  
persulphates, and peracids.

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